



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/934,884

08/22/2001

Wenge Ren

4749-110 US

9254

32294

7590

01/27/2006

SQUIRE, SANDERS & DEMPSEY L.L.P.

14TH FLOOR

8000 TOWERS CRESCENT

TYSONS CORNER, VA 22182

EXAMINER

ISMAIL, SHAWKI SAIF

ART UNIT

PAPER NUMBER

2155

DATE MAILED: 01/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/934,884

Applicant(s)

REN, WENGÉ

Examiner

Shawki S. Ismail

Art Unit

2155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

RESPONSE TO AMENDMENT

1. This communication is responsive to the RCE received on November 1, 2005. Claims 1, 11-13, 19, 26-32 and 37-39 have been amended, claims 45-51 have been newly added. Claims 1-51 are pending.

The New Grounds of Rejection

2. Applicant's amendment and arguments received on September 2, 2005 have been fully considered, however they are deemed to be moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-6, 9-14, 16-23, 25-40, and 42-44, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Baskey et al.**, (Baskey) U.S. Patent No. **6,148,410** and in view of **Jones et al.**, (Jones) U.S. Patent No. **6,983,294**.

5. As to claim 1, Baskey teaches a protocol redundancy method comprising the steps of:

providing a router having an active processor (col. 1, Line 66 – col. 2, line 7);
coupling a standby processor to said active processor (col. 1, Line 66 – col. 2, line 7);

forwarding network protocol information from said active processor to said standby processor for synchronizing link configuration and protocol states of said active processor at said standby processor upon coupling of said standby processor to said standby processor by maintaining a synchronization state machine for each task within a protocol (col. 3, lines 32-48); and

switching said router to said standby processor when a failure is detected at said active processor (col. 1, Line 66 – col. 2, line 7); wherein all states of said protocol immediately function as if the failure had not occurred (col. 1, Line 66 – col. 2, line 7).

Baskey does not explicitly teach wherein the protocol is an Open Shortest Path First (OSPF) protocol. Jones teaches a redundancy system and method of managing requests in a control plane of a communication node, which includes a first control card and a second control card, wherein the control cards are OSPF modules in a router. The redundancy system and method defines one of the control card to be in the active state and the other to be in the inactive state and maintaining synchronicity of information stored on the control card so that if a failure occurs the states of the control cards can be switch and normal processing operations would not be interrupted (abstract, col. 3, lines 17-40).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the teaching of Jones into the teaching of Baskey in order to make the network stable. The advantage of shortest path first algorithms is that

they result in smaller more frequent updates everywhere. They converge quickly, thus preventing such problems as routing loops and Count-to-Infinity (when routers continuously increment the hop count to a particular network) which makes for a stable network.

Baskey does not explicitly teach wherein a hidden interface is created on both the active processor and the standby processor for each area during initial synchronizations the hidden interface being unexposed. and at least one hidden adjacency being automatically built over the hidden interface and being used to synchronize databases on both the active processor and the standby processor.

Jones teaches wherein synchronicity is achieved by use of a point to point communication channels to ensure that the system information is accessible by the redundant component. The redundancy managers 30 and 32 are responsible for synchronizing the two control cards.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the teaching of Jones into the invention of Baskey in order to make the system faster. The synchronization of the link state database information is handled faster so that the responsibilities of active and inactive control cards are switched almost instantly.

6. As to claim 3, Baskey teaches the method of claim 2 wherein said link protocol information is link-state database information, OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 2, line 64 – col. 3, line 6).

7. As to claim 4, Baskey teaches the method of claim 2 further comprising the step of processing identical OSPF packets after synchronizing said link configuration and link protocol states between said active processor and said standby processor (col. 5, lines 53-57).

8. As to claim 6, Baskey teaches the method of claim 5 further comprising the step of forwarding said OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information using said hidden OSPF interface of said active processor and said hidden OSPF interface of said standby processor (col. 4, lines 54-67).

9. As to claim 9, Baskey teaches the method of claim 1 further comprising the steps of:

updating network link protocol information at said active processor (col. 4, lines 54-57); and

forwarding said updated network link protocol information to said standby processor (col. 4, lines 54-57).

10. As to claim 10, Baskey teaches the method of claim 4 wherein said forwarding step is a process based on a Database Exchange Process of the OSPF protocol (col. 4, lines 54-57).

11. As to claim 14, Baskey teaches the method of claim 13 wherein said OSPF protocol information is OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 2, line 64 – col. 3, line 6).

12. As to claim 16, Baskey teaches the method of claim 13 further comprising the steps of:

updating network link protocol information at said active processor means (col. 4, lines 54-57); and

forwarding said updated network link protocol information to said standby processor means (col. 4, lines 54-57).

13. As to claim 17, Baskey teaches the method of claim 13 wherein said synchronizing step is a process based on a Database Exchange Process of the OSPF protocol (col. 4, lines 54-57).

14. As to claim 18, Baskey teaches the method of claim 13 further comprising the step of processing identical OSPF packets after synchronizing said link configuration and link protocol states between said active processor and said standby processor (col. 5, lines 53-57).

15. As to claim 21, Baskey teaches the system of claim 19 wherein said link protocol information is link-state database information, OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 2, line 64 – col. 3, line 6).

16. As to claim 22, Baskey teaches the system of claim 21 wherein said means for forwarding link protocol information comprises:

means for creating a hidden OSPF interface on for each area of said active processor (col. 4, lines 54-67);

means for creating a hidden OSPF interface for each area of said standby processor (col. 4, lines 54-67); and

means for forwarding said link-state database information from said hidden OSPF interface of said active processor to said hidden OSPF interface of said standby processor until said link state database of said standby processor is synchronized with said link state database of said active processor (col. 4, lines 54-67).

17. As to claim 23, Baskey teaches the system of claim 22 wherein said means for forwarding link protocol information comprises forwarding said OSPF configuration information, said OSPF adjacencies information, said OSPF interface information and said OSPF global protocol information using said hidden OSPF interface of said active processor and said hidden OSPF interface of said standby processor (col. 4, lines 54-67).

18. As to claim 25, Baskey teaches the system of claim 19 further comprising:

means for updating network link protocol information at said active processor (col. 4, lines 54-67); and

means for forwarding said updated network link protocol information to said standby processor (col. 4, lines 54-67).

19. As to claim 26, Baskey teaches the system of claim 19 wherein said means for forwarding network link protocol information comprises:

a redundant card manager for maintaining a synchronization state machine of said link protocol states for tasks of said protocol, said network link protocol information being forwarded through said redundant card manager (col. 3, lines 44-48).

20. As to claim 27, Baskey teaches the system of claim 19 further comprising a task manager for determining said link protocol states of said tasks and forwarding said link protocol states to said redundant card manager (col. 3, lines 49-60).

21. As to claim 28, Baskey teaches the system of claim 19 wherein said means for switching said router to said standby processor comprises a software redundancy manager which interacts with said redundant card manager to indicate switch over from said active processor to said standby processor (col. 3, lines 49-60).

22. As to claim 29, Baskey teaches the system of claim 19 wherein said state of said tasks enters an OSPF_FAULT_INIT state which is an initial state before coupling of standby processor to said active processor (col. 9, lines 34-41).

23. As to claim 30, Baskey teaches the system of claim 19 wherein said state of said tasks enters an OSPF_FAULT_VERIFY state which is entered during synchronization of said link configuration of said active processor and said standby processor (col. 9, lines 34-41).

24. As to claim 31, Baskey teaches the system of claim 19 wherein said state of said tasks enters an OSPF_FAULT_SYNC state during forwarding of said link protocol information from said active processor to said standby processor, said link protocol information comprising link-state database information, OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 9, lines 52-59).

25. As to claim 32, Baskey teaches the system of claim 19 wherein said state of said tasks enters an OSPF_FAULT_FULL state after said forwarding network link protocol

information, said OSPF_FAULT_FULL state is a hot standby state wherein said standby state can immediately take over all operations of said standby processor (col. 9, lines 52-59).

26. As to claim 35, Baskey teaches the system of claim 19 wherein said means for forwarding is a process based on a Database Exchange Process of the OSPF protocol (col. 4, lines 54-57).

27. As to claim 36, Baskey teaches the system of claim 19 further comprising: means for processing identical OSPF packets after synchronizing said link configuration and link protocol states between said active processor and said standby processor (col. 5, lines 53-57).

28. As to claim 40, Baskey teaches the system of claim 39 wherein said OSPF protocol information is OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 2, line 64 – col. 3, line 6).

29. As to claim 42, Baskey teaches the system of claim 39 further comprising:
means for updating network link protocol information at said active processor means (col. 4, lines 54-67); and

means for forwarding said updated network link protocol information to said standby processor means (col. 4, lines 54-67).

30. As to claim 43, Baskey teaches the system of claim 39 wherein said means for forwarding is a process based on a Database Exchange Process of the OSPF protocol (col. 4, lines 54-57).

31. As to claim 44, Baskey teaches the system of claim 39 further comprising:

means for processing identical OSPF packets after synchronizing said link configuration and link protocol states between said active processor and said standby processor (col. 5, lines 53-57).

32. As to claims 2, 5, 11, 12, 13, 19, 20, 22, 33-34, 37, 38, 39 and 45-51 they do not further teach or define any new limitation above the rejected claims above; therefore, they are rejected for similar reasons.

33. Claims 7, 8, 15, 24, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Baskey et al.**, (Baskey) U.S. Patent No. **6,148,410** and in view of **Jones et al.**, (Jones) U.S. Patent No. **6,983,294**.and further in view of “**Official Notice**” as evident by the Microsoft Computer Dictionary (Fifth Edition).

34. As to claim 7, Baskey teaches the method of the claimed invention as shown above. Baskey does not explicitly disclose wherein said link protocol information is in the form of Inter Process Control (IPC) messages.

Official Notice is taken that both the concept and advantages of Inter Process Control (IPC) are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the times of the applicant's invention to use link protocol information in the form of Inter Process Control (IPC) messages because (IPC) enables one application to control another application, and for several applications to share the same data without interfering with one another.

35. As to claims 8, 15, 24, and 41, Baskey teaches the method of the claimed invention as shown above. Baskey does not explicitly disclose wherein said

configuration information is determined from Command Line Interface (CLI) commands stored in a datastore.

Official Notice is taken that both the concept and advantages of Command Line Interface (CLI) are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the times of the applicant's invention to incorporate the use of Command Line Interface (CLI) into the invention of Baskey in order to make the system more flexible. Command based systems are usually programmable; this gives them flexibility unavailable in graphics-based system that does not have a programming interface.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawki S Ismail whose telephone number is 571-272-3985. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached at 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 2155

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shawki Ismail
Patent Examiner
January 17, 2005



SALEH NAJJAR
SUPERVISORY PATENT EXAMINER